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**A New Form of *Arisaema nambae* Kitam. (*Araceae*), an Endangered Aroid
in Western Japan**

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Summary: A new form of *Arisaema nambae* Kitam. (*Araceae*) is described from Okayama Prefecture, western Japan. *Arisaema nambae* f. *viride* H. Ikeda, T. Kobay. & J. Murata is distinguished from f. *nambae* by having pale greenish spathe and spadix appendages.

Arisaema sect. *Pistillata* (*Araceae*) is a semi-endemic group in Japan, and comprises more than 40 species (Murata 2011). The *Arisaema undulatifolium* group is one of the groups in the section, and characterized by having high number of ovules in each ovary, flowering prior to the expansion of leaves, and the chromosome number $2n = 26$ (except *A. nambae*) (Watanabe et al. 1998, Kobayashi et al. 2003). In general, species in *Arisaema* sect. *Pistillata*, except *A. japonica* and *A. serratum*, show spathe color either purple or green. In the case of species in the *A. undulatifolium* group, they usually have a purplish spathe (Kobayashi et al. 2003, 2008, Murata 2011).

Arisaema nambae Kitam. is one of the species in the *A. undulatifolium* group, and listed as an endangered species in Japan (Environmental Agency of Japan 2000), as it is distributed in a narrow range in the western Okayama and eastern Hiroshima Prefectures, western Japan (Ohashi and Murata 1980, Kobayashi et al. 2003, 2008, Murata 2011).

Arisaema nambae blooms in spring, and usually has a purplish spathe (Kitamura 1964, Kitamura and Murata 1966, Ohashi and Murata 1980, Ohashi 1982, Kobayashi et al. 2003, 2008, Murata 2011). Kobayashi et al. (2003, 2008) examined pigmentation of the spathe in the *A. undulatifolium* group extensively, and found that all the specimens of *A. nambae* possessed a purplish one with only a few exceptions.

During the course of exploration of endangered species in Okayama Prefecture, we found two individuals of *A. nambae* having a pale greenish spathe and a spadix appendage (Fig. 1A–C). We also found normal ones in the vicinity (Fig. 1D, E).

The chromosome number of *A. nambae* was reported as $2n = 28$ (Watanabe et al. 1998, Tsusaka et al. 2007), different from other species in the *A. undulatifolium* group that had $2n = 26$ chromosomes (Watanabe et al. 1998). We checked chromosome numbers of these individuals having a greenish or purplish spathe, respectively, and counted as $2n = 28$ for both types (Fig. 2). From the chromosome numbers, there is another possibility that those plants might be raised from hybridization between *A. nambae* and *A. serratum* (Thunb.) Schott or *A. peninsulae* Nakai, which have a greenish spathe with chromosome numbers $2n = 28$ and occur in the same area. However, the individuals do not



Fig. 1. *Arisaema nambae* Kitam. A–C. f. *viride* H. Ikeda, T. Kobay. & J. Murata. D, E. f. *nambae*. Photo: Kuroyama, Kibichuo-cho, Okayama Prefecture, 21 April 2006.

show intermediate forms between *A. nambae* and such species, and differ from typical *A. nambae* only in the color of the spathe and spadix appendage.

Therefore, we have concluded that these individuals with a greenish spathe represent a green-spathe form of *A. nambae*, and named it f. *viride*.

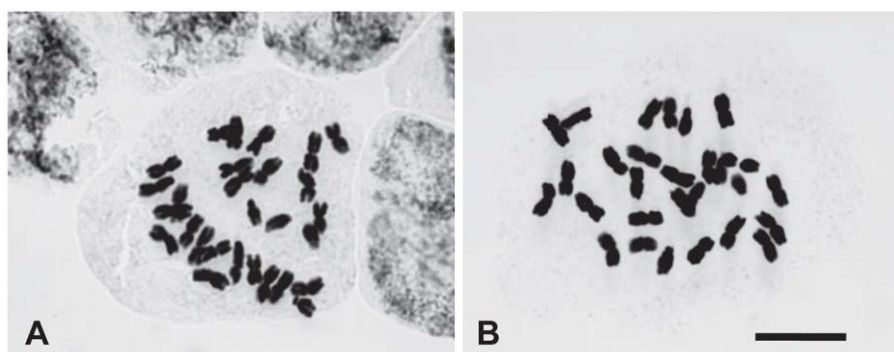


Fig. 2. Somatic chromosomes of *Arisaema nambae* Kitam. A. f. *viride* ($2n = 28$). B. f. *nambae* ($2n = 28$). Bar = 10 μ m. Voucher specimens: Ikeda & al. 06042109 (TI) for A, Ikeda & al. 06042108 (TI) for B.

Arisaema nambae Kitam. [Col. Illust. Herb. Pl. Jap. **III**: 209 (1964), nom. nud.] in Acta Phytotax. Geobot. **22**: 73 (1966) – Sugim., Key Herb. Pl. Jap. **2**: 244 (1973) – T. Kobay. & al. in Acta Phytotax. Geobot. **54**(1): 13 (2003) – J. Murata, *Arisaema* in Japan: 148 (2011).

A. undulatifolium Nakai subsp. *nambae* (Kitam.) H. Ohashi & J. Murata in J. Fac. Sci. Univ. Tokyo, sect. III, **12**: 309 (1980) – H. Ohashi in Satake & al., Wild Fl. Jap., Herb. Pl. **I**: 136 (1982).

f. *viride* H. Ikeda, T. Kobay. & J. Murata, f. nov.

Forma *viride* is different from f. *nambae* by having a pale greenish spathe and a spadix appendage, while typical f. *nambae* has purplish ones.

Type: JAPAN. Honshu. Okayama Pref., Kaga-gun, Kibi-chuo-cho, Kuroyama, 360 m alt. (H. Ikeda, N. Yamamoto, H. Kondo & A. Tanaka no. 06042109, 21 Apr. 2006, TI-holo, KYO-iso).

Japanese name: Moegi-Takahashi-Ten'nanshō (nom. nov.).

新和名: モエギタカハシテンナンショウ

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池田 博^a, 山本伸子^b, 小林禧樹^c, 邑田 仁^d: 絶滅
危惧植物タカハシテンナンショウ (サトイモ科) の新品種

サトイモ科タカハシテンナンショウ *Arisaema nambae* Kitam. は、テンナンショウ属マムシグサ節に属す多年草で、子房あたりの胚珠の数が多いこと、展葉に先立ち花を開くことなどにより、ヒガンマムシグサ群として取り扱われる。タカハシテンナンショウは岡山県西部と広島県東部に生育し、分布域が限られていることから、全国版レッドデータブックでは絶滅危惧 IA 類とされる。

筆者らは、岡山県加賀郡吉備中央町で淡緑色の仏炎苞をもつタカハシテンナンショウを採集した。タカハシテンナンショウは、他のヒガンマムシグサ群の種と同様に、紫色を帯びた仏炎苞を持つものが大多数であり、淡緑色の仏炎苞をもつことは非常に稀である。実際近くには紫色を帯びた仏炎苞をもつタカハシテンナンショウも生育していた。

タカハシテンナンショウの染色体数は $2n = 28$ であり、染色体数が $2n = 26$ である他のヒガンマムシグサ群の種

とは異なることが知られている。今回採集した個体の染色体を観察したところ、淡緑色の仏炎苞をもつものも、紫色の仏炎苞をもつものも、ともに $2n = 28$ と算定された。他の外部形態を比較しても、仏炎苞の色以外に違いはなく、淡緑色の仏炎苞をもつものはタカハシテンナンショウの一種であると判断された。

そこでこの淡緑色の仏炎苞をつけるタカハシテンナンショウに対し、f. *viride* H. Ikeda, T. Kobay. & J. Murata と名付けることとした。和名は、仏炎苞が萌黄色を呈することからモエギタカハシテンナンショウとする。

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